rubber is as good as natural rubber, why the two should not exist side by side." But the rubber planter is bidden take heed of the lesson taught by the fate of the natural alizarin and indigo industries and consider possibilities of improving the yield of natural rubber by better methods of tapping, coagulation, the study of agricultural conditions, and possible improvements by fertilisation and the suppression of insect pests, which play havoc with the young trees. It is a significant fact that the Badische Anilin und Soda-Fabrik has agreed to put by 1,000,000*l.* for research in connection with synthetic rubber, just as nearly 1,000,000*l.* was expended by the same firm in research before synthetic indigo was placed on the market.

MOVEMENTS OF GLACIERS.[1]

THE seventeenth report of the Commission Internationale des Glaciers makes its appearance for the year 1911, in conformity with the decision at the Stockholm meeting, without waiting for laggard documents. We learn from it that on the Swiss Alps the majority of the glaciers are still decreasing, probably in consequence of the hot summer of 1911, only three showing signs of an advance, the reason of which remains to be discovered. In the Eastern Alps the observations include eight groups out of twelve, and these show that the fairly general advance of 1910 has not been maintained. In the Italian Alps the retreat, except in a few cases, has been general, as in the previous years, that of the southern end of the Brenva Glacier (Mt. Blanc) having been sixty metres.

The report from the French Alps has not yet been received, but it is not likely to differ materially from the others, so that in this chain the diminution which began about half a century ago has now continued considerably longer than the time which was supposed to be its average one. Of the Scandinavian glaciers, four out of the five observed in Sweden show a marked advance. In Norway a larger number has been studied—in Jotunheim twenty-seven, and in different parts of western Norway twenty-three. In the former district only two show an advance, the remainder being in retreat. In the latter about half the Jostedalsbræ are moving one way and half the other, but the Okstind (five) and two of the Frostis (three) are advancing.

The report, owing to early publication, does not include returns from Russia, Asia, and America, so that general conclusions cannot be drawn; but we may perhaps infer that no marked change is likely to be indicated. The value, however, of summarised systematic observations such as these is very great, because they form the first step—and a very long one—in ascertaining the causes which bring about these periodic oscillations of the ice-streams.

T. G. B.

THE PROTECTION OF ANCIENT MONUMENTS.

THE last report of the Inspector of Ancient Monuments, Mr. C. R. Peers, with an introduction by the First Commissioner, Earl Beauchamp, describes the limitations under which the work of the Department is conducted at present. The existing Acts are merely permissive, and the State can exercise no supervision, except with the consent, and indeed by the desire, of the owner. Earl Beauchamp believes that his Department should be invested with the power of intervention when monuments are suffering from neglect, or are threatened with actual damage or destruction, a view in which all antiquaries will concur.

Even under the present restrictions much useful work is being done. The most important operations were at Carnarvon Castle in anticipation of the investiture of H.R.H. the Prince of Wales, in the course of which much ancient work was cleared and repaired. At the Chapel Royal, Holyrood, the discovery of the foundations of an ancient church, with apparently contemporary interments, has disproved the legend that the palace was founded in 1124 on a site till then uninhabited. At the Tower of London the Bell Tower and the turret flanking the Byward Gate had been repaired. At Old Sarum the excavations conducted by the Society of Antiquaries have disclosed the plan of the Castle buildings.

Among the most interesting buildings placed in charge of the Department during the year were the Old Machar Cathedral at Aberdeen; the Gateway Tower of Chester Castle; Richard III.'s Tower at Carlisle; Kirby Muxloe Castle in Leicestershire; and the Bishop's and Earl's Palaces at Kirkwall.

Good progress has been made in the preparation of the County Inventories of Historical Monuments, of which five volumes have been issued, and scientific inquiries are in progress for the prevention of decay in stone-work. It may be hoped that Parliament will soon find time to complete the measures for the adequate protection of historical monuments throughout the country.

NOTES.

THE names of few men associated with scientific work appear in the list of New Year Honours. Three fellows of the Royal Society are among the recipients of honours, namely Mr. Francis Darwin, upon whom a knighthood is conferred; Dr. A. G. Bourne, Director of Public Instruction, Madras, who is made a Knight Commander of the Order of the Indian Empire (K.C.I.E.); and Dr. W. R. Dunstan, director of the Imperial Institute, who has been appointed a Companion of the Order of St. Michael and St. George (C.M.G.). Other names of men known in the scientific world are Sir Frank Crisp, a new baronet, for many years treasurer and vice-president of the Linnean Society, and honorary secretary of the Royal Microscopical Society from 1878 to 1889; Dr. R. W. Philip (knighthood), distinguished by his work on the etiology and treatment of tuberculosis; Mr. S. Stockman (knighthood), chief veterinary officer to the Board of Agriculture and Fisheries; Dr. W. G. Liston (C.I.E.), director of the Bacteriological Laboratory, Parel, and senior member of the Plague Research Commission; and Prof. P. J. Brühl (I.S.O.), Civil Engineering College, Sibpur.

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[1] "Les Variations Périodiques des Glaciers." xvii Rapport, 1911. Rédigé par Charles Rabot et E. Muret. (Extrait des "Annales de Glaciologie," t. vii., pp. 37-47.) (Berlin: Borntraeger Frères, 1912.)

THE President of the Board of Agriculture and Fisheries has appointed an advisory committee to advise the Board on questions relating to the elucidation through scientific research of problems affecting fisheries. The committee will be composed of the following:—Mr. H. G. Maurice, Mr. F. G. Ogilvie, C.B., Commander M. W. C. Hepworth, C.B., Prof. G. C. Bourne, F.R.S., Prof. J. S. Gardiner, F.R.S., Prof. A. Dendy, F.R.S., Prof. W. A. Herdman, F.R.S., Prof. A. Meek, Dr. A. E. Shipley, F.R.S., Dr. E. W. MacBride, F.R.S., Dr. W. Evans Hoyle, Dr. S. F. Harmer, F.R.S., Dr. G. H. Fowler, and Dr. E. J. Allen. Mr. H. G. Maurice, the assistant secretary of the Fisheries Division of the Board of Agriculture and Fisheries, will act as chairman of the committee, and Mr. A. T. A. Dobson, of the Board of Agriculture and Fisheries, as secretary.

THE Research Defence Society has lately opened a bureau and exhibition at 171 Piccadilly, opposite Burlington House. The windows display a good collection of pictures, photographs, charts, and lantern-slides; apparatus for anæsthetics; germs in test-tubes; specimens of tsetse-flies and mosquitoes; books, pamphlets, and leaflets. They serve to remind "the man in the street" of the immense importance of experiments on animals to the welfare of mankind, and the great saving of human and animal life and health already achieved. Among the pictures is a large engraving of Fildes's "The Doctor," presented to the society by the artist himself. Leaflets are distributed outside. The bureau is in charge of a young lady, who receives signatures and contributions, and enlists new members and associates. The exhibition is quietly attractive to all passers-by.

IT is with regret that we have to record the death of Mr. J. Rowland Ward, the well-known taxidermist, which took place at his residence, Restmore, Boscombe, Hants, on Saturday, December 28, 1912. Mr. Ward, who succeeded to the business started by his father, Henry Ward, was, we believe, the first to raise taxidermy to the rank of a fine art, and to replace the old-fashioned "stuffing" process by modelling the form of the animal, and then covering the "manikin" with the skin. And not only was he the inventor of this method, but the work of his firm has ever since maintained that high standard of excellence which has rendered the name of Ward famous throughout the world. The deceased gentleman was, indeed, a born artist, possessing almost unrivalled skill in modelling animals, and if his energies had not been otherwise fully occupied there is little doubt that he could have attained eminence as a sculptor. In addition to mounting individual animals or their heads, Mr. Ward devoted special attention to big groups of animals, the first of which was a "Combat of Red Deer," shown at the London International Exhibition of 1871. For this and other exhibits of the same nature, as well as for the excellence of his work as a general taxidermist, Mr. Ward received a number of gold medals and other awards. In addition to his business as a taxidermist, Mr. Ward published numerous works on big game and sport. He was, moreover, himself an author, and his "Records of Big Game" and "Sportsman's Handbook," which have passed through several editions, are invaluable both to the sportsman and to the naturalist. Mr. Ward leaves a widow, but no family.

THE death is announced, at ninety-one years of age, of Dr. P. Redfern, formerly Regius professor of anatomy and physiology at Queen's College, Belfast.

MR. J. B. TYRRELL, of Toronto, Canada, a member of the council of the twelfth International Geological Congress, to be held in Toronto in August next, is in London for a short time, stopping at the Hotel Victoria, Northumberland Avenue. He asks us to state that while in London he will be glad to furnish information to anyone who purposes to attend the meeting of the congress.

ON Monday, December 23, the millionth visitor to the Zoological Gardens, Regent's Park, during 1912 passed the turnstile. This is a record attendance, and bears forcible testimony to the appreciation by the public of the improvements which have been effected during the last few years in the gardens. The fortunate individual who completed the million was awarded a free pass to the gardens for 1913.

MR. EDWARD TYER, well known as a telegraphic engineer, and by his inventions in connection with the system of block signalling on railways, died on Christmas night in his eighty-third year. Mr. Tyer was a fellow of the Royal Astronomical Society, and also an associate (1861) of the Institution of Civil Engineers, under its original charter, a member of the Institution of Electrical Engineers, and a fellow of the Royal Microscopical and Geographical Societies.

THE Commonwealth Government has entrusted Prof. A. J. Ewart, professor of botany in the University of Melbourne, with the investigation of the plants collected during the recent Northern Territory exploring expedition, and has appointed Dr. A. Morrison, formerly Government Botanist of West Australia, to assist in the work. Dr. Morrison will reach Melbourne shortly, and it is hoped that the material available will be sufficient for the preparation of a flora of the Northern Territory.

WE learn from *The Times* that M. Liard, rector of the University of Paris, announced at a meeting of the council of the University held on December 27 that the Marquise Arconati-Visconti has decided to supplement her previous gift of 20,000*l.* by a further gift of 20,000*l.* to be devoted "to the benefit of the Faculties of Science and of Letters." It has been decided to use the money for the erection of an Institute of Geography to be built by the side of the Oceanographical Institute, endowed by the Prince of Monaco.

The Museum News for December, issued at Brooklyn, New York, gives a full account of the unrivalled collection of specimens of ancient Chinese cloisonne which has been recently presented to the Central Museum by Mr. S. P. Avery. A complete catalogue of this splendid collection has been prepared by Mr. J. Getz, and is accompanied by a full description of the elaborate processes by Mr. S. W. Bushell.

The November issue of *The National Geographic Magazine* is remarkable for the large series of excellent coloured photographs which accompany two important articles on modern Russia. The first of these, by Mr. W. W. Chapin, is entitled, "Glimpses of the Russian Empire"; the second, by Major-General A. W. Greely, on "The Land of Promise," gives an interesting account of a journey across Siberia, and describes the enormous bodies of emigrants who are rapidly occupying a region of immense fertility. "Slowly but surely," he observes, "the fuller, freer life of Asiatic Russia is bringing into higher and harmonious relations with its environment the godlike soul of man."

In *L'Anthropologie* for September–October last, L'Abbé H. Breuil, MM. S. Gomez and C. Aguilo continue their important series of studies of primitive art in the Palæolithic caves of Southern Europe with a description of those recently found at Alpéra, 270 kilometres from Madrid. These drawings exhibit several notable peculiarities. They are nearly all representations, probably magical in intention, of hunting scenes, in which the drawings of human figures, usually thin and elongated, with occasionally pronounced steatopygy, depicting their weapons—bows, arrows, and lances—are peculiarly interesting. In one picture two dames, perhaps of high rank, appear dressed in wide, probably ornamented, petticoats. As some of the figures have been retraced, it is not easy to decide their relation to works of art of the same or similar types, except the conclusion that they probably belong to the earlier Quaternary period. It is to be hoped that this series of valuable contributions to prehistoric archæology will soon be republished in a permanent form and in English.

The "Live Stock Journal Almanack" for 1913 maintains the high level characteristic of that publication, as well as its wealth of pictorial illustration. The contents include nearly sixty articles, notably one by Lord Northbrook on agricultural societies. Others relate to most of the British breeds of horses, cattle, sheep, and pigs. The least satisfactory is one on the relationships of the different breeds of horses and the ancestry of the group, the author evidently possessing but an imperfect acquaintance with his subject.

In *Naturwissenschaftliche Wochenschrift* of December 15, 1912, Dr. Killermann-Regensburg gives an account, with illustrations, of pictures of the walrus, the bison, and the elk by Albert Dürer. All three are in the Sloane library at the British Museum; those of the bison and elk having been apparently brought to light but recently by Mr. Harry David, who described them in the first part of the *Jahrbuch der K. preussischen Kunstsammlungen* for 1912. In the early part of the sixteenth century, and indeed up to 1550 bison still survived in Prussia, Hungary, and Siebenburge, so that Durer may well have seen a living example. Apart from prehistoric sketches, his picture is the earliest known portrait of the bison.

From the time their existence was recorded by Mr. Boulenger, in 1900, the presence of hair-like appendages in the males of certain frogs has been a puzzle to naturalists. A possible clue to their function is suggested by Dr. Bashford Dean in vol. xxxi., art. 29 (pp. 349–351), of the Bulletin of the American Museum of Natural History. The suggestion is to the effect that these hairs may serve to retain the coils of spawn in cases where—as in the midwife-toad (Alytes), which does not, however, develop hairs—they are carried on the bodies and thighs of the males. It is mentioned that hair-like vascular structures are developed on the ventral appendages of the lungfish Lepidosiren, which also possesses the brooding habit.

To *The Victorian Naturalist* of November, 1912, Mr. J. A. Kershaw communicates some interesting particulars with regard to the breeding habits and young of the platypus. Three burrows on the Hopkins River were dug out in the presence of the author, one on October 26, 1911, and the other two on October 22, 1912. From the first was obtained a female with two recently hatched offspring, and from the others eggs, a pair in one case and a single one in the other. When the first female was taken a young one was clinging to the belly so tightly that some little effort was required to detach it; its fellow had fallen off unobserved when the parent was dragged from the trench. None of the burrows had an entrance below the normal water-level, and in some cases the entrance was so high up on the bank that it would be submerged only by very exceptional floods. After the eggs are hatched the female parent remains for some days with the young in the burrow, which she blocks with earth in several places, probably as a protection against flood-water, or possibly against enemies.

Messrs. H. E. Jordan and K. B. Steele have published an interesting account of their work on the intercalated discs of heart muscle in *The American Journal of Anatomy* (vol. xiii., 1912, 151). Mr. H. E. Jordan had reached the conclusion in a previous paper, from his study of the discs in the heart muscle of humming birds, that these discs were not intracellular elements marking cell boundaries as maintained by Zimmermann and others. In the present paper, which is a comparative study in the microscopy of cardiac muscle, the authors adduce evidence in support of the contention of Mr. Jordan. They maintain that the discs are to be interpreted in terms of local contractions in the muscle fibrils, and that this explanation accounts for the great variety in formation and structure (of the discs) which is found. Further, they hold that the presence of these discs seems to be related in some way to the function of rhythmic contraction which is characteristic of cardiac muscle. In support of this hypothesis they advance the following facts. (1) The discs are absent in the heart of the mammalian fœtus, but they increase in number with age; (2) they are located in lines corresponding roughly with the axes of the heart muscle mesh; (3) they are generally found present in greatest abundance in hearts of rapid beat; and (4) they are also present in the striated muscle of the media in the proximate (beating) end of the pulmonary arteries; for example, in those of the mouse.

WE have received the report of the Bristol Museum and Art Gallery Committee for the year ending September 30 last, and congratulate the committee and the director on a year of steady progress in all departments. New cases have been provided for the birds, reptiles, amphibians, and fishes, and these groups of vertebrates have been completely re-arranged and placed in their natural place relative to the collections of invertebrates so well exhibited in the Dame Emily Smyth room, opened last year. This work completes the re-organisation of the zoological galleries, which must now rank as some of the most attractive in the provinces. A scheme for the reorganisation of the geological and mineralogical collections has been prepared, but cannot be carried out in its entirety until new cases are provided. We hope that the appeal made in this report will meet with an adequate response, for the collections contain much valuable material, *e.g.*, the series of Coal Measure fossils from the Bristol and Somerset coal beds, which, as pointed out in this report, is most complete, and must, for some time, remain unique owing to many of the mines having been closed down since they were collected. It is gratifying to note the increased use which has been made of the museum by students and by teachers and pupils of schools. The committee is alive to the educational value of museums and art galleries, and it is a pleasure to record the success which has attended its efforts to make the institution a real educational asset to the city.

DR. FELIX OSWALD recently presented to the Royal Geographical Society an account of his journey last winter from the Victoria Nyanza to the Kisii highlands. His primary object was to ascertain the geological nature of the locality where Mr. D. B. Pigott, shortly before his unfortunate death while hunting, found a jaw-bone of Dinotherium. Dr. Oswald, however, also investigated considerable areas of unmapped country in the Kavirondo and Kisii districts, and reconnoitred in the extensive tracts left uninhabited through the ravages of sleeping-sickness. He has also carefully studied the natives of the country east of the Victoria Nyanza, and made many references to the beautiful flora of the region. He drew a comparison between the successful ruling of this large and recently hostile country by a handful of Englishmen with the domination of the Romans in Britain, and described with welcome appreciation the way in which the land is governed by the district commissioner, two officers and a doctor, living at Kisii, which was chosen as the administrative centre as being outside the range of the tsetse-fly. Dr. Oswald has brought back collections of fossils, Neolithic implements, insects, shells, and certain plants, besides geological and topographical maps, and photographs—all as the result of only two months' work in the field.

IF from the vertices of a triangle perpendiculars be drawn on a straight line, and if from their feet perpendiculars be drawn on the opposite sides, these perpendiculars meet in a point called the orthopole. Mr. W. Gallatly has published a short pamphlet on the properties of the orthopole, based partly on Prof. Neuberg's work and partly on his own. His address is 5 Hampton Place, St. Marychurch, Torquay.

MESSRS. B. G. TEUBNER, of Leipzig, have forwarded their new catalogue of works on mathematics and natural philosophy, comprising books issued by them in these departments between April, 1908, and July, 1912. The catalogue is beautifully got up, and contains portraits of Leonard Euler as well as of the principal contributors to the Mathematical Encyclopædia and other publications.

THE use of algebraic formulæ for indicating the prices of goods in an actual price list appears to be somewhat of an innovation, but it has been introduced into the new catalogue of spectroscopic apparatus issued by Messrs. Adam Hilger, Ltd., of 75A Camden Road. A feature of greater importance is the excellence of the descriptions and illustrations of the apparatus with which the catalogue deals.

SUPPLEMENT No. 25, vol. xi., of the Communications from the Physical Laboratory at Leyden (this supplement being a reprint of article V. 10 of the *Encyklopädie der Mathematischen Wissenschaften*), by Prof. H. Kamerlingh Onnes and Dr. W. H. Keesom, consists of a most elaborate and extensive monograph on the equation of state. Together with its exhaustive references to the original literature, its table of contents and its author and subject indexes, this monograph forms a most valuable addition to science, and will be heartily welcomed by all workers in physics and physical chemistry. Prof. Kamerlingh Onnes is the recognised authority in this field of investigation, a position which he has won by thirty years of continuous and systematic theoretical and experimental work. It would be natural, therefore, to expect that this volume (extending to nearly 350 pages) would contain a masterly treatment of the subject, and it may be said at once that an examination of its contents more than justifies the expectation. The subject is discussed from every possible aspect, and includes a very full treatment of the theoretical as well as the experimental side of the problem. For many years to come the present monograph will be an indispensable work of reference for every physicist and chemist. We have also received Communications Nos. 127, 130, and Supplement No. 25 to Communications Nos. 121–132. These deal with researches on the isotherms of diatomic gases and their binary mixtures, on the second virial coefficient for diatomic gases, and on the Hall effect and changes in resistance in metals and alloys at low temperatures.

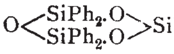
AN article on "The Essential Oils," including an account of the materials and methods of perfumery, is contributed to *Knowledge* for December by Mr. H. F. Slack. Written in a popular style, it still contains a large array of accurate technical information, which will provide profitable reading for the trained chemist as well as for the lay reader.

UNDER the unassuming title of "Studies of Chinese Wood Oil, β-Elaeostearic Acid," Dr. R. S. Morrell describes in the Chemical Society's Journal a series of experiments which represent the starting-point of a new era in the study of "drying oils." This particular oil, when exposed to light, deposits a crystalline glyceride $(C_{18}H_{31}O_2)_3C_3H_5$, which absorbs oxygen with extreme facility, and possesses all the essential properties of a drying oil. But on account of its high melting-point, 61–62° C., it can be separated in a state of chemical purity, and provides for the first time a homogeneous material for the accurate scientific study of the "drying" process. The free acid of the glyceride and five of its salts are described in the paper. It is a remarkable fact that the ethyl ester, unlike the glyceride, does not possess the property of setting.

EXCEPTIONAL interest attaches to Prof. Kipping's papers on organic derivatives of silicon, issued in the November number of the Chemical Society's Journal. The most recent papers deal with silicane-diols of the type $SiX_2(OH)_2$. These compounds possess in a remarkable degree the property of forming anhydrides. Thus diphenylsilicanediol, $SiPh_2(OH)_2$, gives compounds such as the diols—

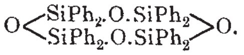
$$HO.SiPh_2.O.SiPh_2.OH,$$
$$HO.SiPh_2.O.SiPh_2.O.SiPh_2.OH,$$

and the oxides—



$$\mathrm{O}\left\langle\begin{matrix}\mathrm{SiPh_2.O}\\ \mathrm{SiPh_2.O}\end{matrix}\right\rangle\mathrm{SiPh_2}$$

and



$$\mathrm{O}\left\langle\begin{matrix}\mathrm{SiPh_2.O.SiPh_2}\\ \mathrm{SiPh_2.O.SiPh_2}\end{matrix}\right\rangle\mathrm{O}.$$

These are formed by the removal of water from two, three, three and four molecules of the original diol. Such compounds are undoubtedly typical of a tendency amongst silicon compounds to form chains and rings of alternate silicon and oxygen atoms, which are nearly as stable as the "all-carbon" chains of organic chemistry. This tendency serves to explain the prolific character of oxidised silicon, which gives rise to derivatives only less complex than the carbon-compounds of organic chemistry.

ON December 18 Mr. W. J. A. Butterfield delivered a lecture on coal gas before the Institute of Chemistry, at University College, London. The requirements of a public gas supply were first discussed, the principal points being minimum cost per heat unit, strong smell to facilitate detection of leaks, a luminous flame, and innocuous combustion products. The growth and magnitude of the gas industry here and abroad were then dealt with, the world's production of town gas in 1912 being estimated at 620,000 million cubic feet, for the production of which about 60 million tons of coal would be consumed. As by-products, 30 million tons of coke, 3 million tons of tar, together with ammoniacal products equivalent to about 550,000 tons of sulphate of ammonia, would be sold. As regards the annual consumption of gas per head of population, London heads the list with more than 8000 cubic feet. The predominant use of gas at the present day was stated to be for heating purposes. From this point of view present-day requirements of a gas supply in this country were characterised by (1) a gross calorific power of 540 to 580 B.T.U. per cubic foot; (2) specific gravity between 0·4 and 0·5; (3) oxygen required for complete combustion to be between 1·0 and 1·1 volumes of the coal gas, but the fluctuations in each of these to be restricted within narrow limits for any one district.

MESSRS. WILLIAMS AND NORGATE have just published the first number (January) of *The British Review,* with which is incorporated *The Oxford and Cambridge Review.* The aim is stated to be "to provide a periodical that shall be in the forefront of the world's movements, showing what there is to observe in mental and moral advancement." Among the articles in the January issue are:—"My Views regarding True and False Science," by Count Leo Tolstoy; "Bristol University and Some Reforms," by Mr. F. M. Atkinson; and "Huxley and the Catholic Faith," by Mr. Cecil Chesterton.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES FOR JANUARY:—

Jan. 5. 2h. 37m. Mercury in conjunction with the Moon (Mercury 5° 41′ N.).
,, 7h. 36m. Mars in conjunction with the Moon (Mars 4° 25′ N.).
,, 15h. 34m. Jupiter in conjunction with the Moon (Jupiter 5° 11′ N.).
8. 4h. 27m. Uranus in conjunction with the Moon (Uranus 4° 4′ N.).
9. 7h. 32m. Mercury in conjunction with Mars (Mercury 0° 47′ N.).
10. 22h. 29m. Venus in conjunction with the Moon (Venus 1° 28′ N.).
11. 3h. 4m. Mercury in conjunction with Jupiter (Mercury 0° 13′ S.).
13. 9h. 35m. Mars in conjunction with Jupiter (Mars 0° 47′ S.).
14. 20h. 0m. Neptune at opposition to the Sun.
17. 18h. 46m. Saturn in conjunction with the Moon (Saturn 6° 14′ S.).
21. 14h. 7m. Neptune in conjunction with the Moon (Neptune 5° 24′ S.).
23. 14h. 0m. Uranus in conjunction with the Sun.
28. 20h. 0m. Saturn stationary.
31. 19h. 30m. Mercury in conjunction with Uranus (Mercury 1° 23′ S.).

A BRIGHT METEOR REPORTED.—Two correspondents of *The Daily Dispatch* (December 21) report the appearance of what was probably a meteor of exceptional brilliancy at 10.50 p.m. on December 18. One describes it as a long, brilliant, bluish light, "about thirty yards long," and tapering to the "tail," around which was a peculiar pale golden glow. Stationed at Handforth, a village about nine miles due south of Manchester, this observer saw the meteor in the southern sky and states that it appeared to fall slightly during its flight, which lasted eight seconds. The second observer states that the sky was so poor that no stars were visible from where he was, although the moon shone through the mist, yet the meteor was